

# Ethanol Fuel: Coming Soon to a Car Near You

*U.S. Department of Energy*

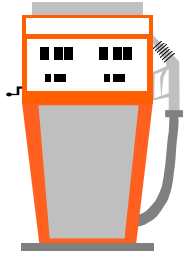
*Ethanol Workshop*

*Honolulu, Hawaii*

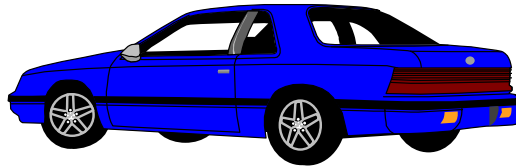
*November 14, 2002*

**Douglas A. Durante**  
**Executive Director**  
**Clean Fuels Development Coalition**  
**Washington, DC**

# Clean Fuels Development Coalition Constituency



**Alternative  
Fuel Providers**



**Automobile  
Manufacturers**



**Clean Fuel  
Technology  
Developers**

**and the . . .**



**Federal and State  
Governments, Public and  
Private Organizations that  
Support Their Advancement**

## Ethanol has a Long History of Bipartisan Support

- Energy Security Act of 1978
- Energy Tax Act of 1980
- Alternative Motor Fuels Act of 1988
- Clean Air Act of 1990
- Energy Policy Act of 1992
- Energy Act of 2002??

All Identify Ethanol as a Way to Achieve a Variety of Public Policy Goals

# Ethanol is Moving the Nation in the Right Direction

## Fuel Ethanol Production

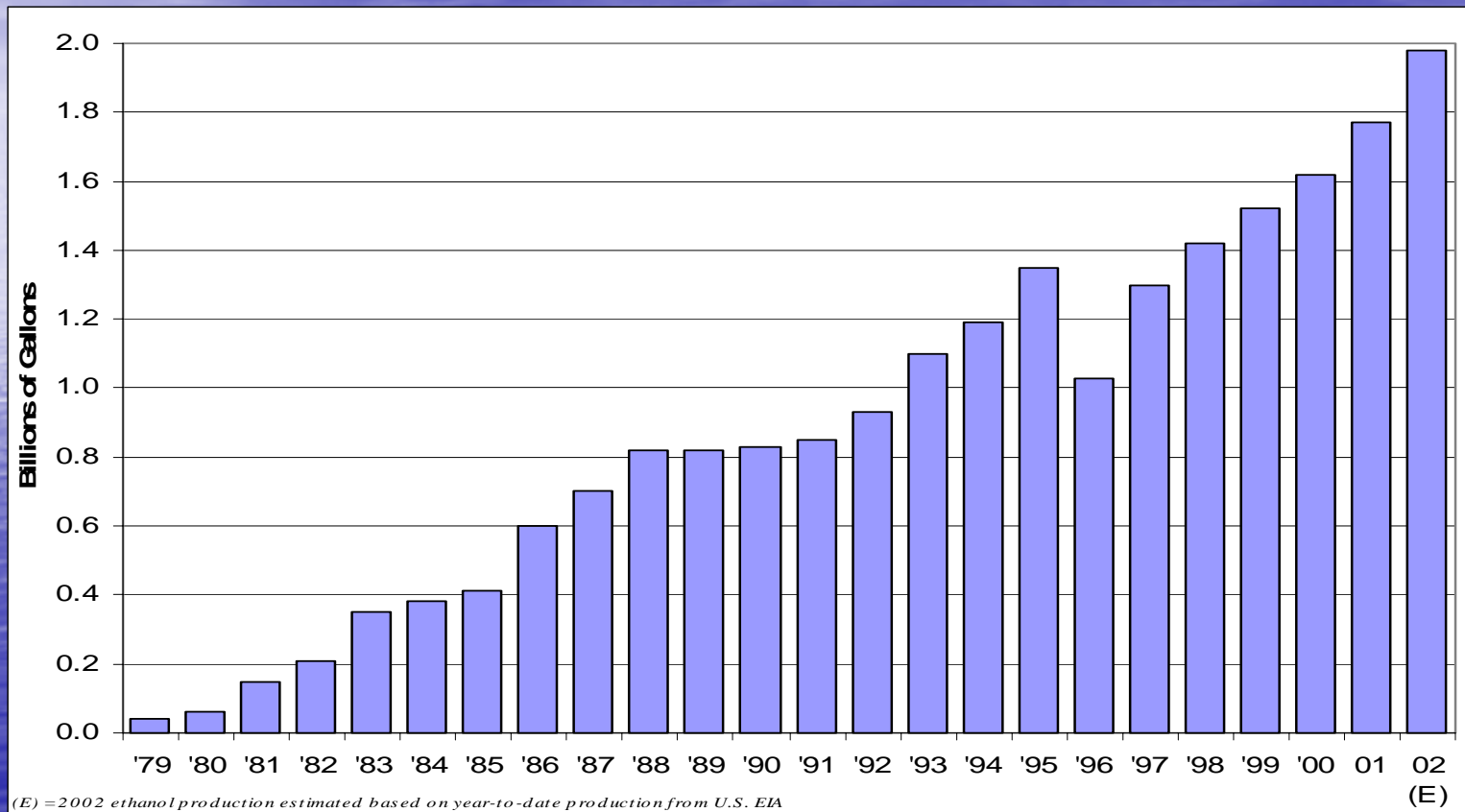


Source: Clean Fuels Development Coalition

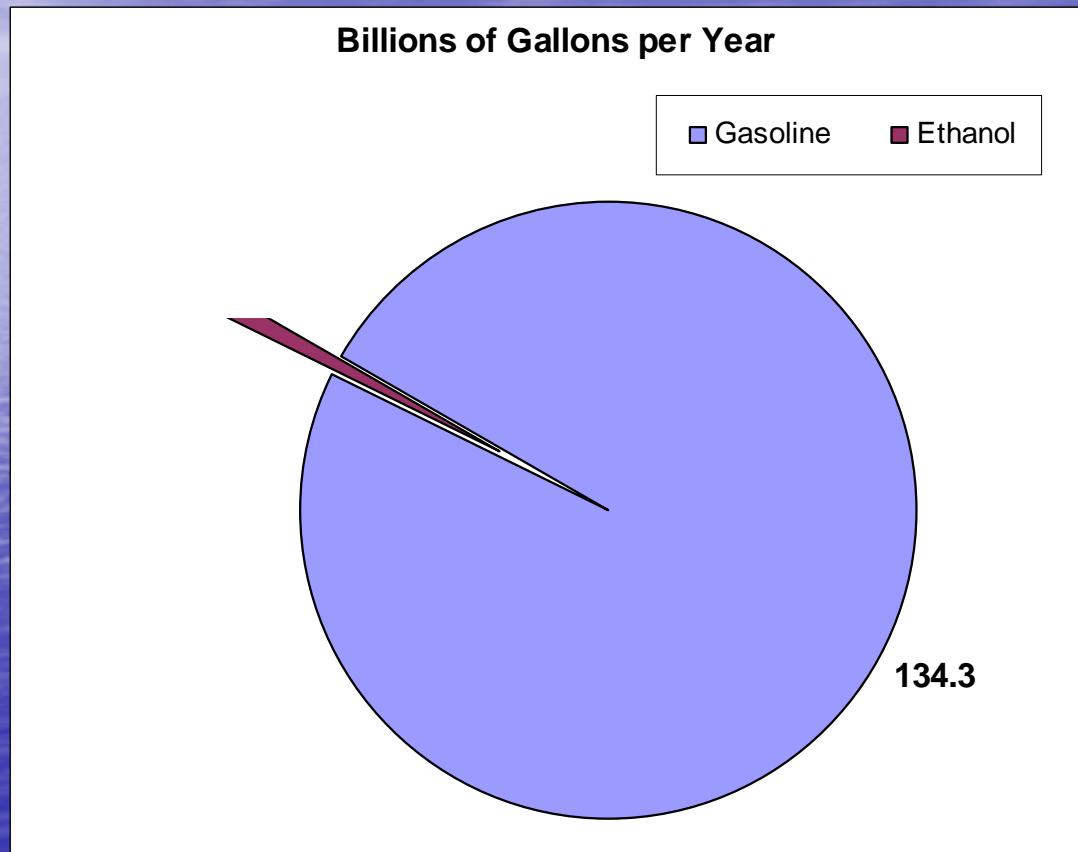
## Ethanol Supported by a Variety of Federal and State Programs

- Increasing Ethanol Use:
  - Federal Tax Incentives
  - Clean Air & Control of Fuel Properties
  - Fleet Requirements
  - E-85 and Alt Fuel Credit Program
- Increasing Ethanol Production:
  - Financial Assistance
  - Commodity Programs
  - State and Local Incentives

## U.S. Fuel Ethanol Production

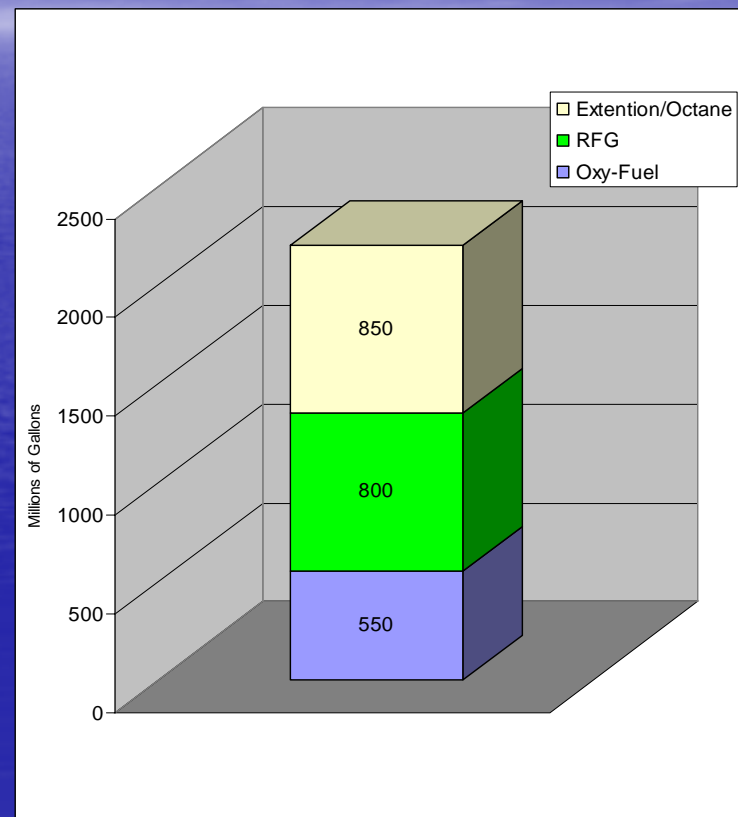


## Ethanol Represents Small Sliver of U.S. Petroleum Pie



## Current U.S. Ethanol Usage

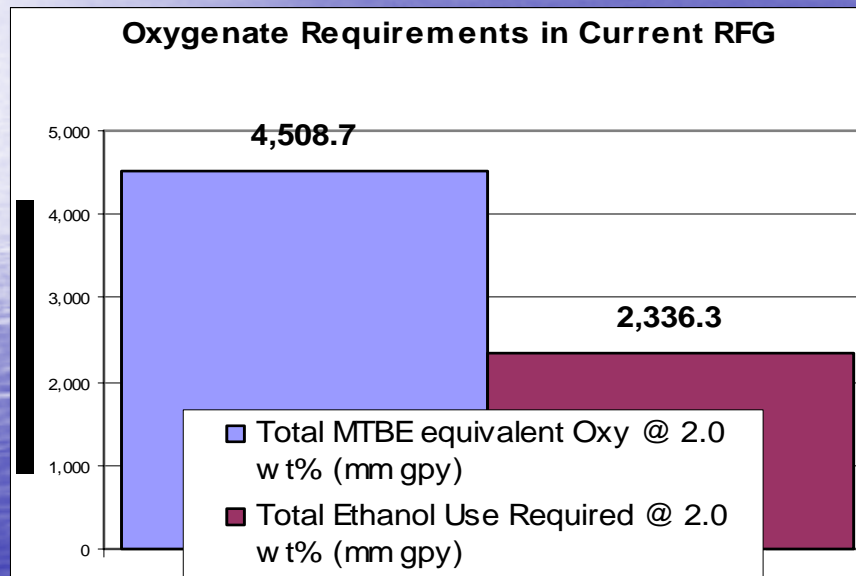
- **Extender and Octane Enhancer**
  - Used at 10 vol%
  - More than 1/2 of the market
- **Oxygenate for Cleaner Fuels**
  - RFG - Smog/Ozone reduction (at least 5.7 vol%)
  - Oxy-Fuels - Wintertime CO (at least 7.7 vol%)
- **Alternative Fuels**
  - OxyDiesel
  - E-85
  - Small market (about 0.5 - 1 million gallons)



# Key U.S. Clean Gasoline Programs

- Carbon Monoxide Control
  - 39 Cities in violation of standard.
  - Required to use gasoline containing 2.7% (wt) oxygen during winter months.
  - Extremely effective -- nearly 2/3 have come into compliance -- 20-30% reduction.
  
- Ozone -- Reformulated Gasoline
  - 9 U.S. cities by law -- a dozen more by choice
  - Vapor pressure controls & oxygen -- 2% (wt)
  - Key emission categories affected:
    - VOCs (exhaust and evaps)
    - Toxics (benzene
    - NOx

# Current RFG & Oxygenate Requirements



Source: Clean Fuels Development Coalition  
Gasoline Demand: U.S. EIA

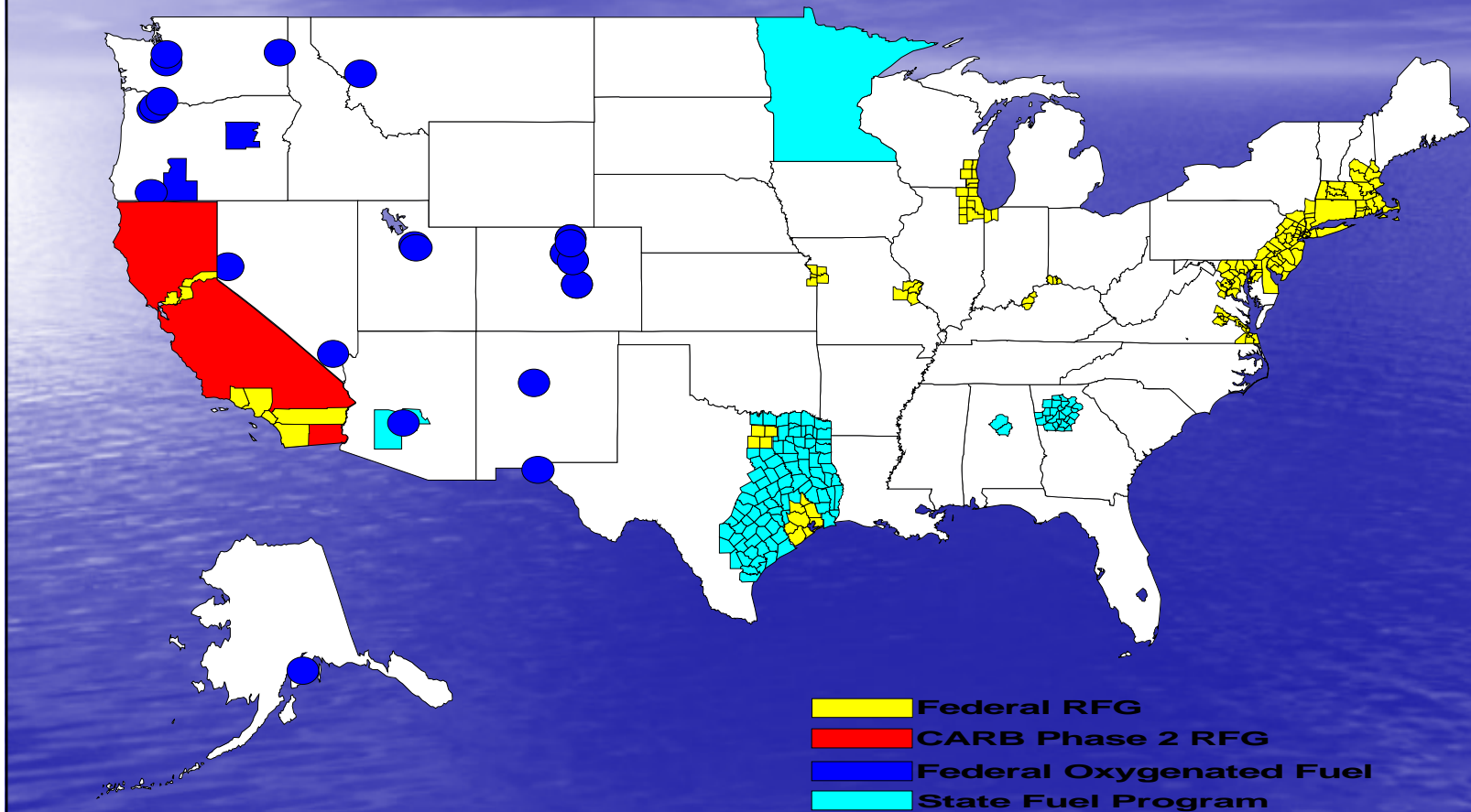
- The Federal RFG Program currently covers about 41 billion gallons of gasoline in the U.S., according to the U.S. DOE's Energy Information Administration's 1998 Petroleum Marketing Annual.
- Meeting the oxygenate requirement for this fuel with MTBE would require just over 4.5 billion gallons, with ethanol, just over 2.3 billion gallons would be needed.

## Possible Banning of MTBE

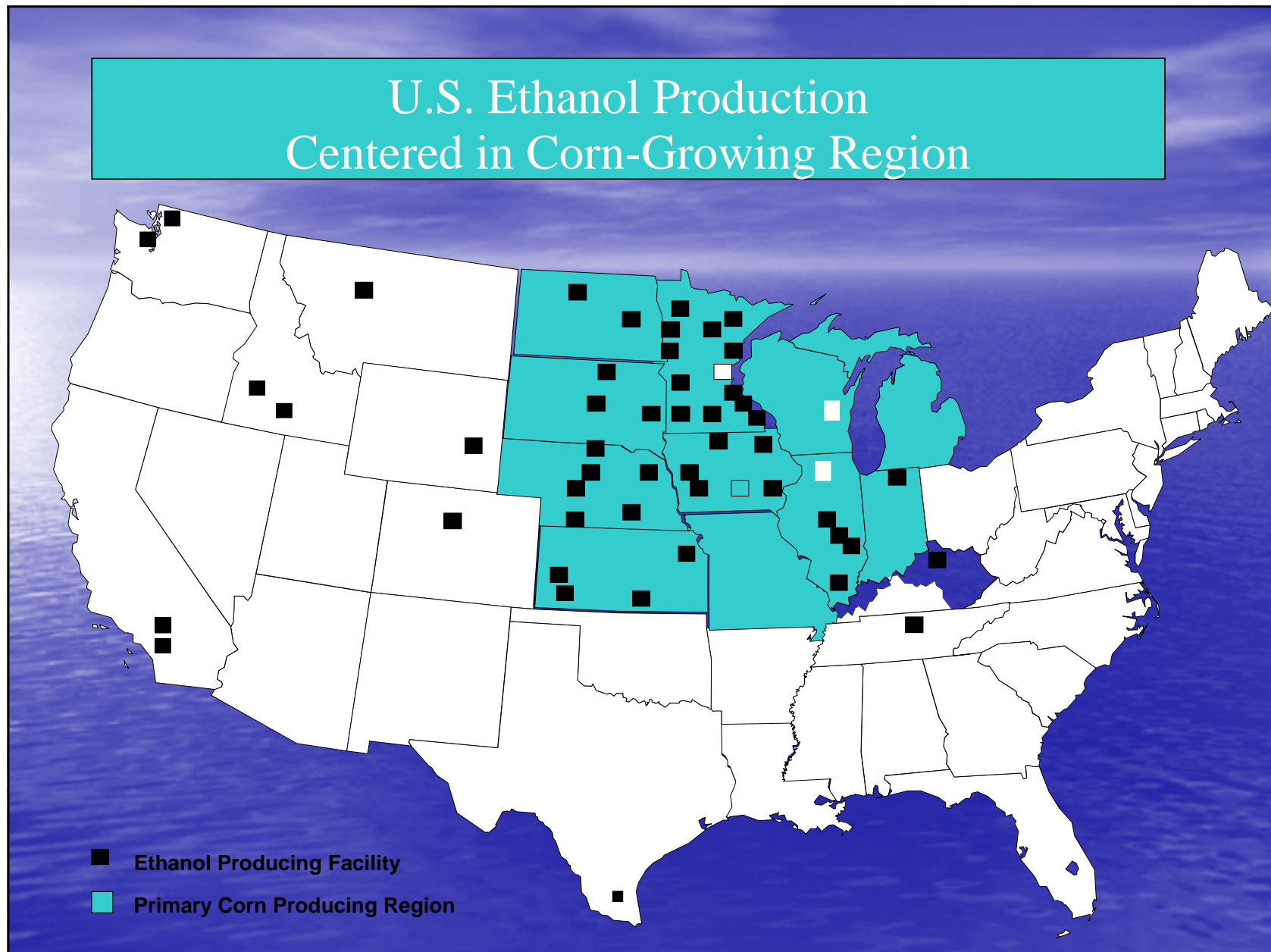


- **4.5 billion gallons used in the U.S.**
- **Proposed to be banned Nationwide**
- **California**
  - Scheduled for elimination in 2004
  - Most refiners already moving away from MTBE
- **Other States are also Banning**
  - Arizona (2003)
  - Connecticut (2003)
  - Maine (no date)
  - Minnesota (2005)
  - Nebraska (use limited)
  - New York (2004)
  - South Dakota (use limited)
- **More to follow when state legislatures begin work in January**

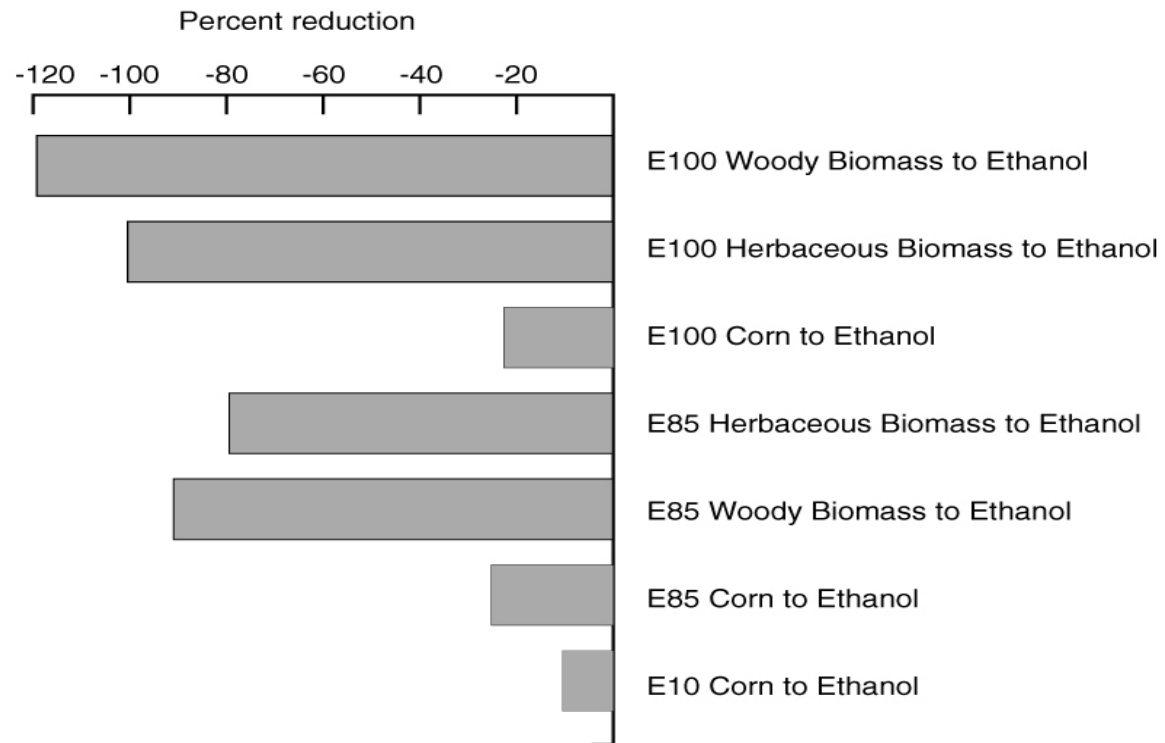
# U.S. Clean Fuel Requirements



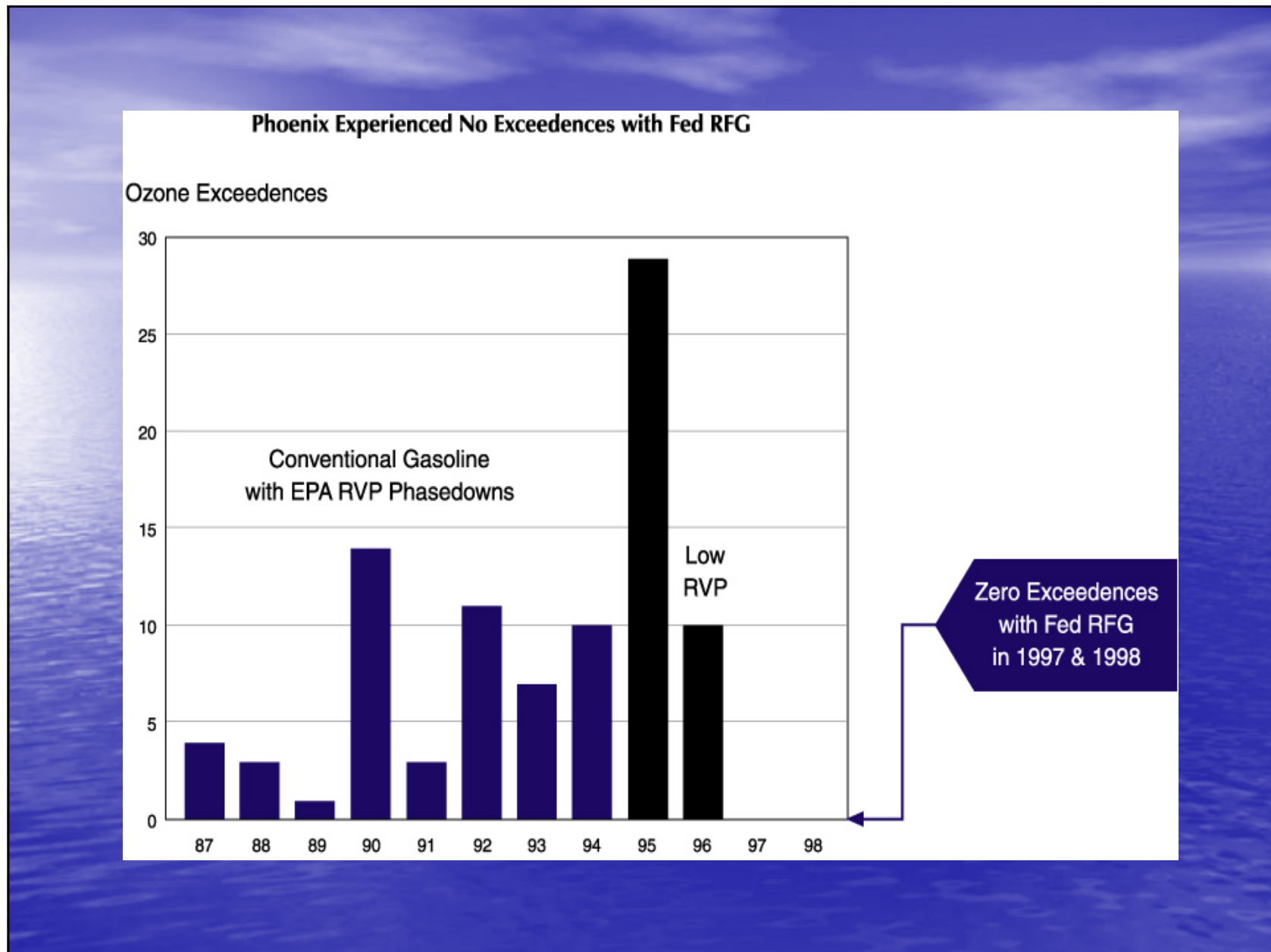
*Source: Clean Fuels Development Coalition*

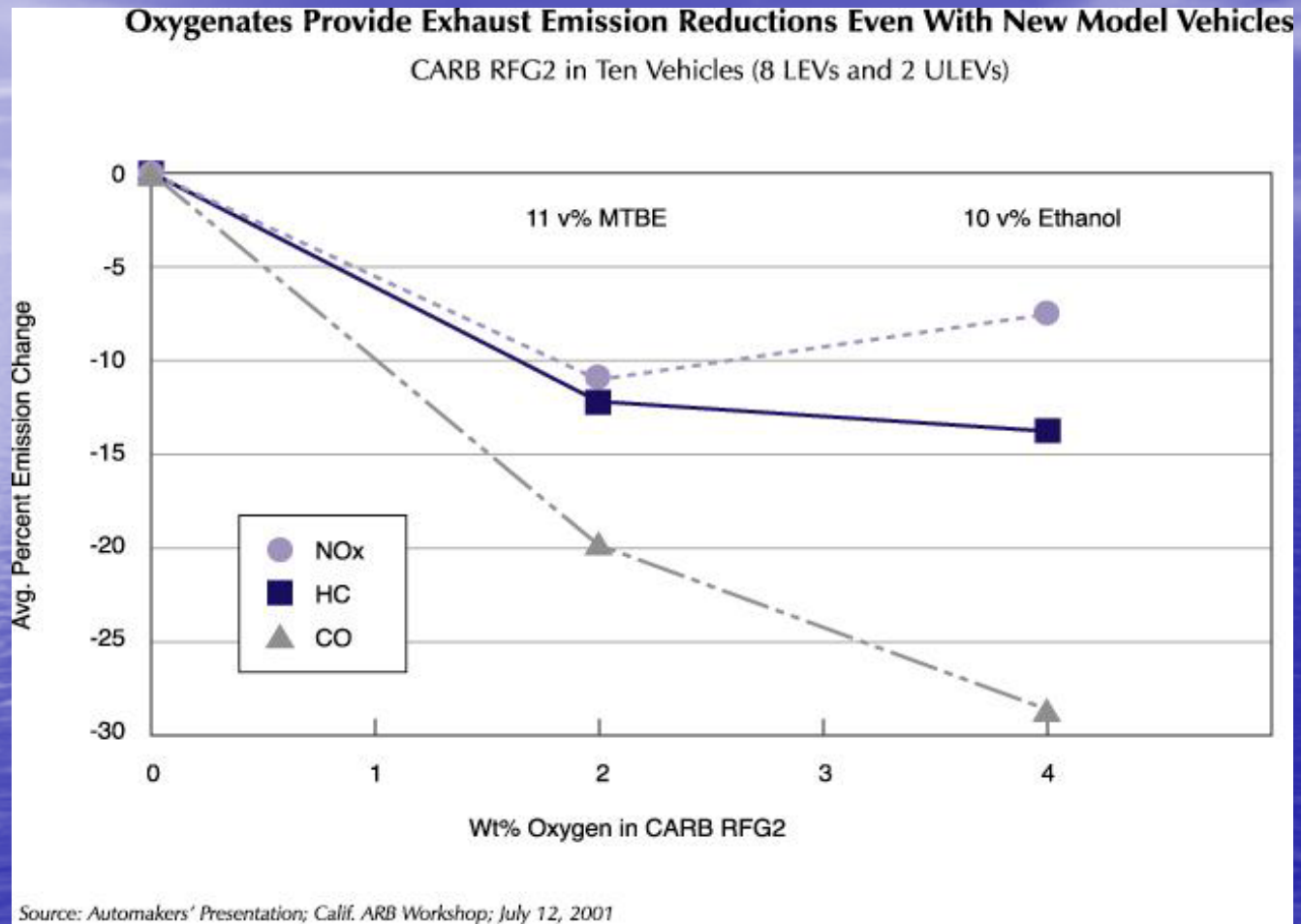


## Greenhouse Gas Reductions Compared to Gasoline



*Source: U.S. Department of Energy, Office of Fuels Development and Congressional Research Service*





## Birth of the RFS: A Solution to Significant Problems

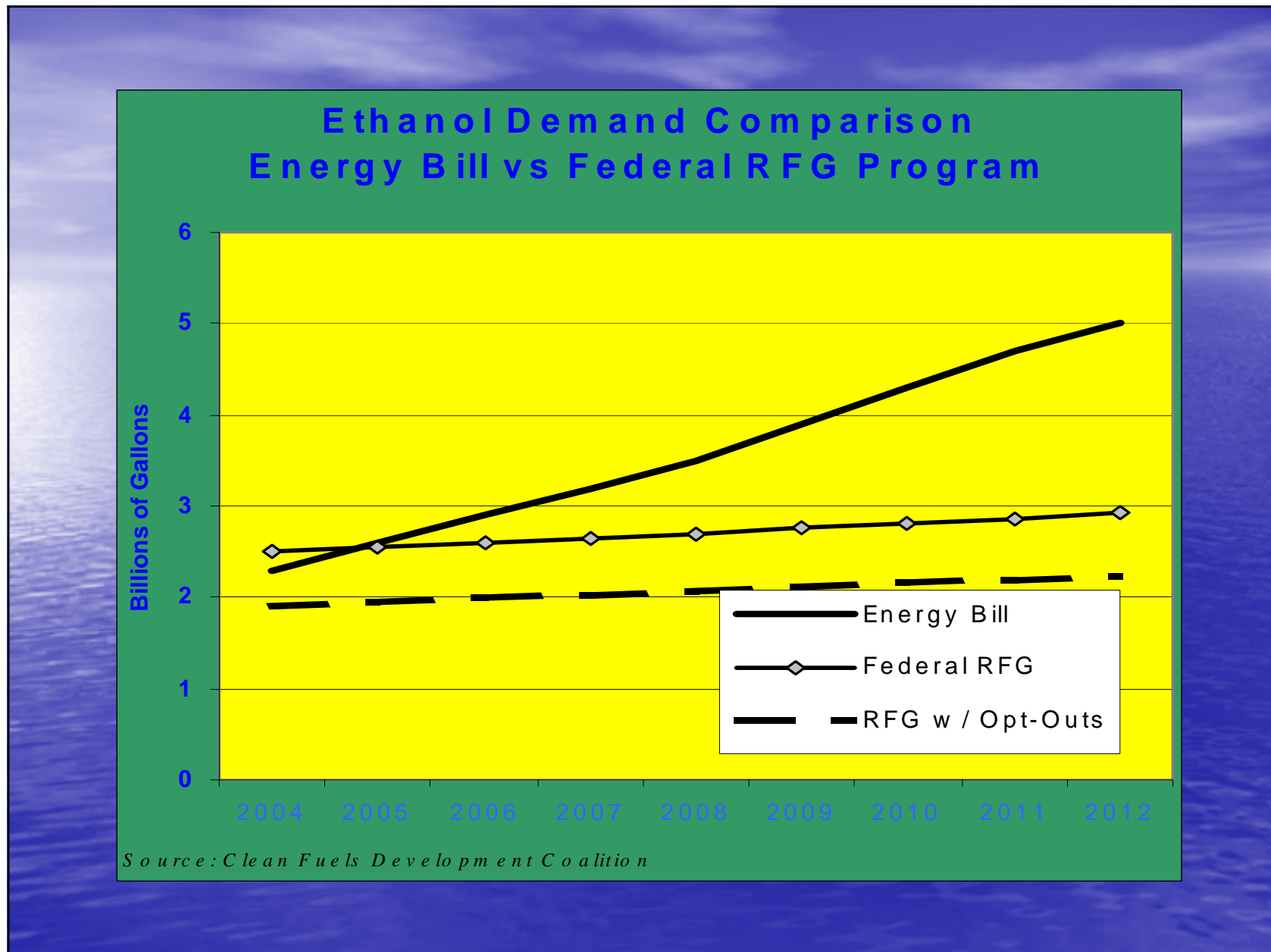
- MTBE In Water
  - Bans MTBE in Four Years
  - Provides Transition and Remediation Assistance
- Limited and Declining Oxygenate Market
  - Replaces Oxygen with Renewable for Demand Pull, Creating More than a Doubling of Market
- Environmental Concerns over Use of Ethanol (Evaporative Emissions)
  - Relieves Urban Areas of Oxygen Requirement
  - Allows for Continued Use in Areas of Success
- Extreme Opposition of Oil Industry to Ethanol Only Program
  - Addresses Difficulties in Meeting Vapor Pressure Restrictions
  - Provides Flexibility in Manner and Geography of Usage

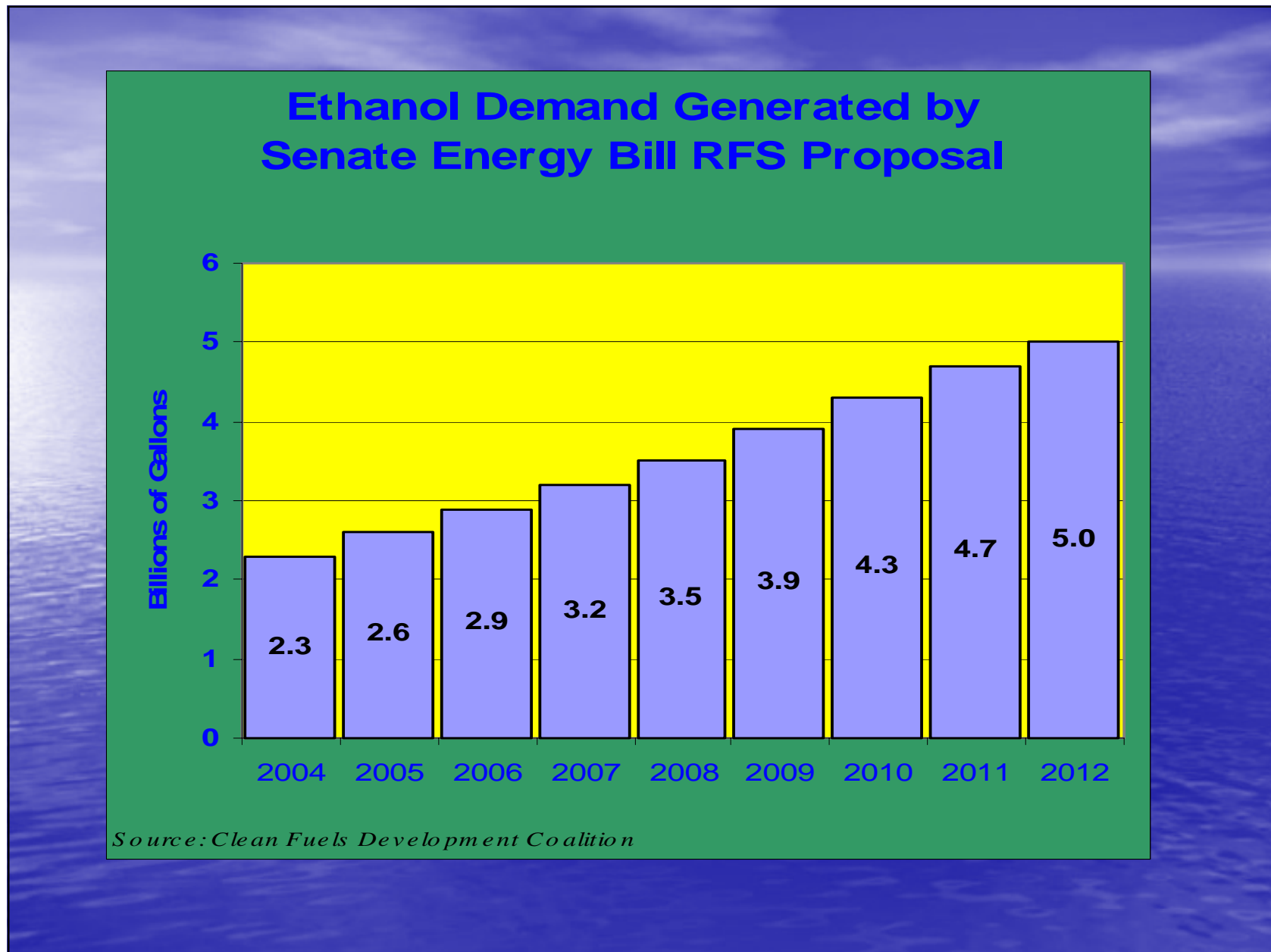
## FACT SHEET ON FUEL PROVISIONS OF S.517

- Establishment of a renewable fuels standard requiring 2.3 billion gallons of either ethanol or biodiesel in 2004 and increasing to 5 billion gallons by 2012;
- Decisive vote in U.S. Senate 69-31, currently in Conference Committee
- Allows Refiners to meet requirement through a credits and trading program;
- Banning of MTBE in 4 years (from enactment);
- Repeal of the oxygen content of federal reformulated gasoline;
- Streamlining the process by which Governors can control vapor pressure;
- Authorizes funds for underground tank cleanup;
- Provides assistance for MTBE producers to convert to other, safer additives;
- Promotes development of biomass ethanol through some preferential treatment in the credits program;
- Treats biodiesel and ethanol as equal thus helping both industries.

## WIDESPREAD SUPPORT FOR RFS

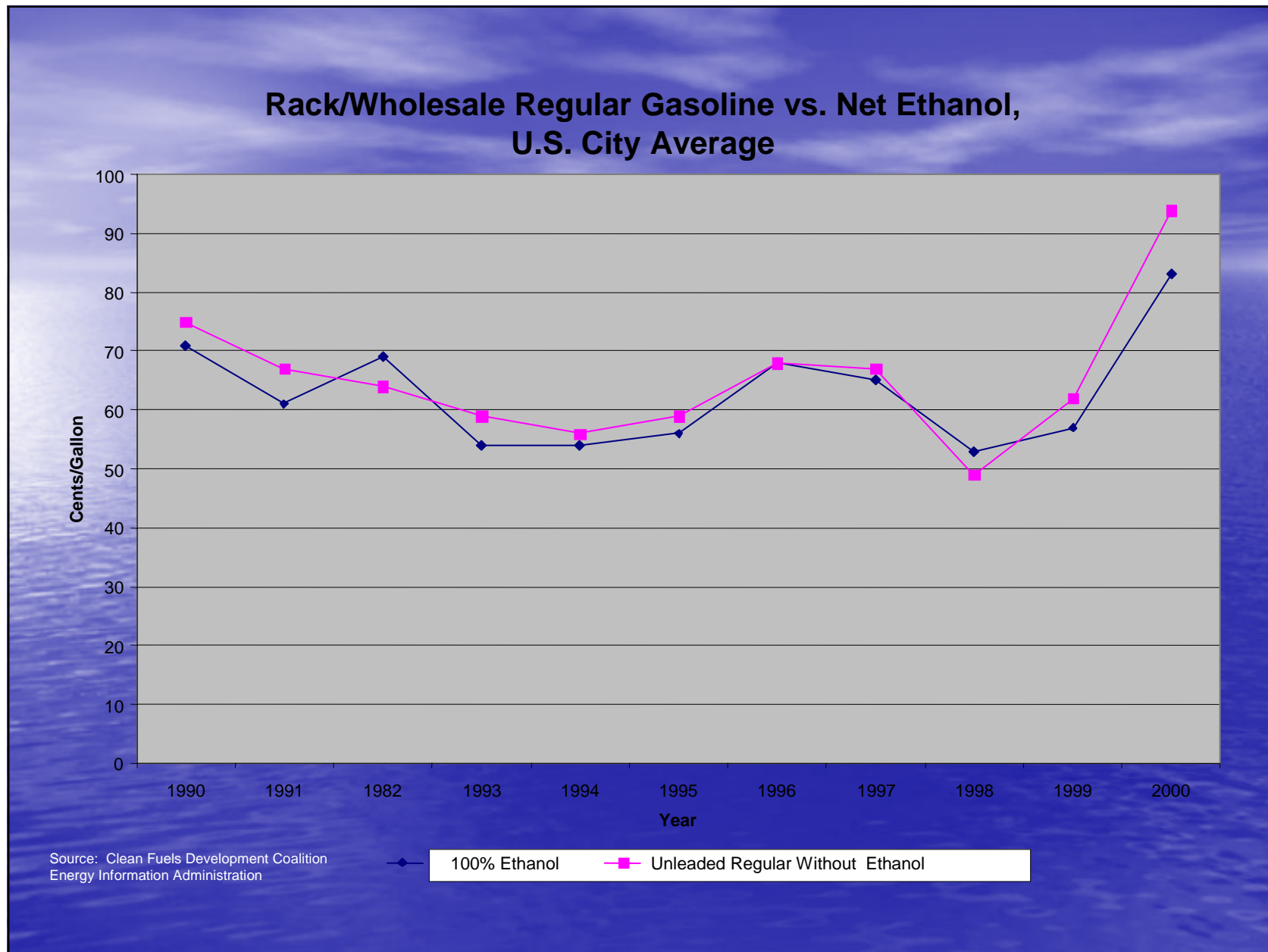
- Ethanol and Agriculture Communities Unified -- RFS Coalition
- U.S. Senate
- Bush Administration -- "*...urges adoption of RFS that will improve the Nation's Energy Security, farm economy, and environment,*" 6-27-02  
Letter from DOE Secretary to Conferees
- Governors' Ethanol Coalition
- Key Environmental and Air Quality Organizations
- American Petroleum Institute
- Previous House Support of Oxygenates Likely to Translate to RFS Support

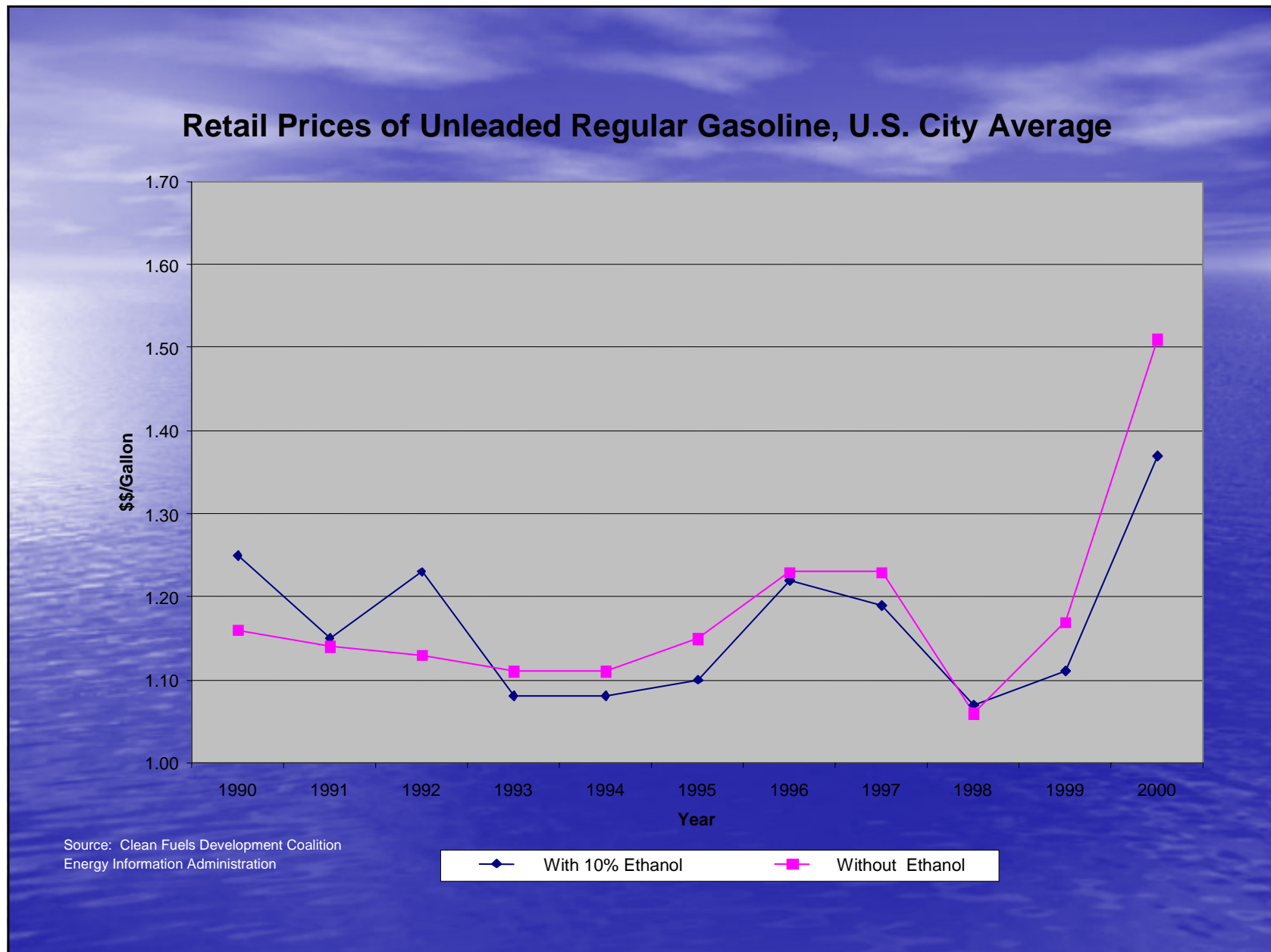




## ONGOING ISSUES AND CONCERNS

- Cost and Price:
  - No Basis for Claims of Higher Gasoline Costs
  - CFDC Analysis of US and Nebraska Supports Lower Cost of Ethanol
  - Petroleum Industry Historically Identifies Supply Shortages/Disruptions as Source of Price Spikes
  - Adding Product Addresses Shortages and Holds Down Prices
- Supply Issues:
  - Meeting Production Goals
  - Drought
  - Capital Investment
  - MTBE Volume Loss
- Energy Balance
- "Food vs. Fuel"
- Boutique Fuels
- Concerns over Consolidation of the Industry
- Ethanol Plant Emissions





# ENERGY SECURITY

Ethanol is Homegrown for the Homeland -- Capitalize on Strengths

- Imported Oil Remains a Key Issue:
  - 2001 U.S. Consumed 18 mmbd,
  - Transportation Sector Uses 68% of Total
  - 57% Imported, or 9.1 mmbd – 1/3 US Trade Imbalance
  - 2.5 mmbd, or 27% comes from Saudi Arabia and Iraq
  - New Estimates of 28 mmbd by 2020
- Last Week EIA Research Reveals Quarterly Increase in Demand Up One Percent from 2001 While Domestic Production down 3%!
  - Difference Met By Imports!
- Stationary Source Power Remains Critical -- Secretary Abraham Calls for One New Power Plant Per Week for Next 20 Years!
- New Technologies (e.g., gasification) Can Allow Ethanol Plants To Become Generators of Food, Fuel, and Power!

# SUMMARY

The ethanol industry is growing throughout the United States.  
Ethanol offers a tremendous opportunity for Hawaii

- Value added to sugar industry
- Employment and economic development
- Increased supply of motor fuels
- Opportunity to become the first state to have all gasoline blended with 10% ethanol
- E-85 and Oxydiesel offer even more displacement

Go for it!!